

rate of one drop every one-half hour for 8 hours. Test eyes were treated with the borate buffered saline solution containing 0.005 weight/volume percent stabilized chlorine dioxide and control eyes were treated with a preserved normal saline solution.

Eyes were observed for discomfort and/or gross ocular reactions at each instillation. Slit lamp biomicroscopy was performed following the last instillation period. No ocular reactions were noted in the test eyes.

The following is a summation of the results of the experiments set forth above:

- A. Discomfort: +1 discomfort, lasting up to 30 seconds, was noted in the control eye at 3 of 48 instillations involving two of three rabbits.
- B. Gross Observations: No ocular reactions were noted at any instillation period.
- C. Slit Lamp Examinations: No ocular reactions were noted in any rabbit.
- D. Cytotoxicity: Rose bengal staining appeared normal in both eyes of all rabbits, indicating that epithelial cell vitality was not affected by the preparations tested.

The above data indicates that a borate buffered saline solution containing 0.005 weight/volume percent stabilized chlorine dioxide is not discomforting, irritating, toxic or cytotoxic to rabbit eyes following this exaggerated method of testing.

#### EXAMPLE VIII (COMPARATIVE)

A series of compositions were prepared using sterilized distilled water and varying concentrations of the proprietary stabilized chlorine dioxide sold by Bio-Cide International, Inc. of Norman, Okla., under the trademark Purogene.

Each of these compositions was tested to determine its pH and osmolality. After the compositions were prepared, they were allowed to equilibrate overnight before the pH and osmolality were determined.

Results of these tests were as follows:

Concentration of Stabilized Chlorine Dioxide, (w/v) %	pH	Osmolality, mOsmol/kg
0.005	6.4	5
0.02	6.8	13
0.1	8.6	55
0.2	9.0	105

These results indicate that simple solutions of stabilized chlorine dioxide in sterilized water have varying pHs, which are often outside the range of about 6.8 to about of the present compositions. Also, such simple solutions have tonicity values or osmolalities substantially outside the range of at least about 200 mOsmol/kg of the present compositions. Put another way, such simple aqueous stabilized chlorine solutions are not effective to provide preserved compositions which are ophthalmically acceptable or compatible with the eye so as to be used without eye discomfort or irritation.

While this invention has been described with respect to various specific examples and embodiments, it is to be understood that the invention is not limited thereto and that it can be variously practiced within the scope of the following claims.

What is claimed is:

1. A method for preserving an aqueous ophthalmic formulation so as to enhance the shelf life thereof comprising incorporating into said aqueous ophthalmic for-

mulation stabilized chlorine dioxide in an amount effective to act as the sole preservative in said aqueous ophthalmic formulation, at least one ophthalmically acceptable buffer component in an amount effective to maintain said aqueous ophthalmic formulation at a pH in the range of about 6.8 to about 8, and at least one ophthalmically acceptable tonicity component in an amount effective to maintain said aqueous ophthalmic formulation at an osmolality of at least about 200 mOsmol/kg, provided that said aqueous ophthalmic formulation is ophthalmically acceptable and no germicidally effective amounts of any positively charged, nitrogen-containing cationic polymers are incorporated into said aqueous ophthalmic formulation.

2. The method of claim 1 wherein said stabilized chlorine dioxide is present in said aqueous ophthalmic formulation in an amount in the range of about 0.0002 to about 0.02 weight/volume percent.

3. The method of claim 1 wherein said stabilized chlorine dioxide is present in said aqueous ophthalmic formulation in an amount in the range of about 0.004 to about 0.01 weight/volume percent.

4. The method of claim 1 wherein said at least one ophthalmically acceptable buffer component is present in an amount effective to maintain said aqueous ophthalmic formulation at a pH in the range of about 7 to about 7.5.

5. The method of claim 1 wherein said at least one ophthalmically acceptable tonicity component is present in an amount effective to maintain said aqueous ophthalmic formulation at an osmolality in the range of about 200 to about 400 mOsmol/kg.

6. The method of claim 1 wherein said aqueous ophthalmic formulation is a solution.

7. A method for preserving an aqueous ophthalmic solution so as to enhance the shelf life thereof comprising incorporating into said aqueous ophthalmic solution stabilized chlorine dioxide in an amount effective to act as the sole preservative in said aqueous ophthalmic solution in the range of about 0.002 to about 0.02 weight/volume percent, at least one ophthalmically acceptable buffer component in an amount effective to maintain said aqueous ophthalmic solution at a pH in the range of about 6.8 to about 8, and at least one ophthalmically acceptable tonicity component in an amount effective to maintain said aqueous ophthalmic solution at an osmolality in the range of about 200 to about 400 mOsmol/kg, provided that said aqueous ophthalmic solution is ophthalmically acceptable and substantially no germicidally effective amounts of any positively charged, nitrogen-containing cationic polymers are incorporated into said aqueous ophthalmic solution.

8. A preserved ophthalmic formulation comprising an ophthalmically acceptable aqueous medium and, included therein, stabilized chlorine dioxide in an amount effective to act as the sole preservative in said ophthalmically acceptable aqueous medium, at least one ophthalmically acceptable buffer component in an amount effective to maintain said ophthalmically acceptable aqueous medium at a pH in the range of about 6.8 to about 8, and at least one ophthalmically acceptable tonicity component in an amount effective to maintain said ophthalmically acceptable aqueous medium at an osmolality of at least about 200 mOsmol/kg, provided that said preserved ophthalmic formulation is ophthalmically acceptable and is free of germicidally effective